

Minutes

The 28th Monitoring and Evaluation Learning Forum

“Data Cleaning and Data Analysis”

29th-30th March 2022, 8:30 AM – 5:00 PM

Hybrid Platform




**គណៈកម្មាធិការ
សហប្រតិបត្តិការដើម្បីកម្ពុជា**
 Cooperation Committee
for Cambodia
 Comité de Coopération
Pour le Cambodge

The 28th Monitoring & Evaluation Learning Forum

Data Cleaning & Data Analysis

 Hybrid Platform
 29th- 30th March 2022
 8:00 AM - 5:00 PM

Admission Fee

- For CCC members: Free 2 seats per NGO, 10USD per person if more than 2 staff participated.
- For Non-CCC members: 20USD per person.

Note

- This Hybrid M&E Learning Forum will be recorded and conducted in Khmer Language only. Participants are required to use computers during the forum.
- Prior registration is required for all participants to get confirmation on the physical or virtual participation and link

Contact Person

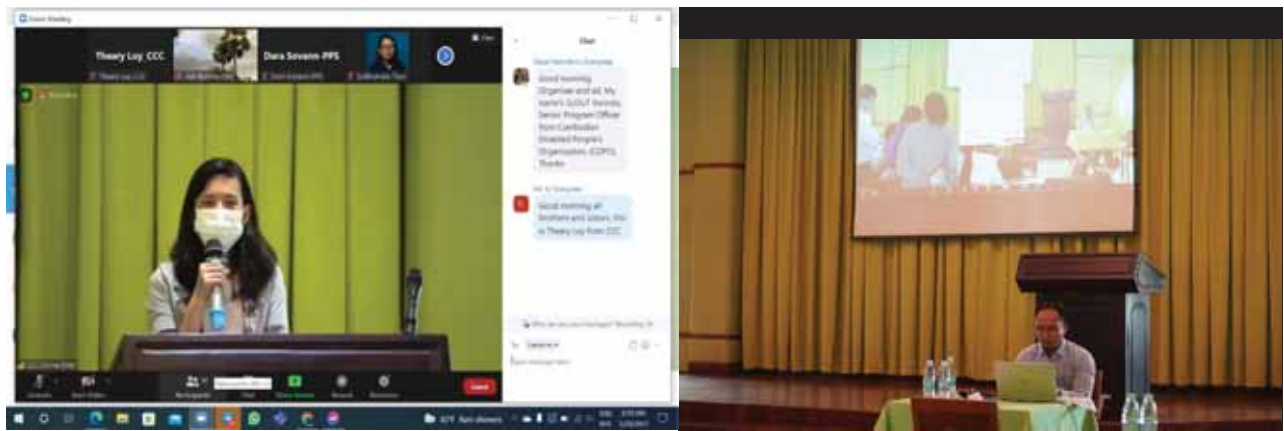
Ms. THAN Sokhomala, GPP Officer
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Partnerships for Sustainable and Democratic Development in Cambodia

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1. Introduction

Cooperation Committee for Cambodia (CCC) is the largest and longest membership-based organization in Cambodia. By February 2022, CCC has 185 foreign and domestic NGOs as its members and provincial NGO networks in 15 provincial NGO networks. Currently, CCC is implementing its fourth phase Governance Hub Program (GHP 2021-2023) which consists of two goals: 1) Improved enabling environment for CSOs; and 2) Sustained functionality of CSO Resource Hub at national and sub national levels.

To respond to the needs on capacity development of Non-Governmental Organizations (NGOs), especially in the period of COVID-19 pandemic in Cambodia, CCC has conducted four learning platforms (HRM, FM, ICT, and M&E). M&E learning forum is one of the learning forum platforms that always gets active supports from the M&E working group members. To response to the needs of its members and their feedback from the previous learning forum, CCC will conduct the 28th Monitoring and Evaluation Learning Forum on “**Data Cleaning and Data analysis**” as Hybrid platform (Physical and Virtual) for two-day from 29th-30th March 2022.

2. Objectives of the Learning Forum

- To share the knowledge on how to do the Data Cleaning and Data Analysis to M&E practitioners and project/program staff.
- To build up more networks and relationships among M&E practitioners and professionals for ongoing learning on M&E and related issues.

3. Process and Result

Ms. Prak Keokongkea, Membership Development officer greeted the participants, introduced the objectives and the ground rules of the forum. The forum was conducted as hybrid platform with the total participants of 19 people from both domestic and foreign NGOs including CCC member and non-CCC member NGOs while the online participants were 89 people.

3.1. Setting the Ground Rules

- Please rename your name according to the name that registered
- Please stay in a silent room that has a stable internet for online participants
- Using earphones for the forum is encouraged
- Please turn off your mic and camera if you do not use any of it
- Do not show any disturbance to guest speakers
- If you have anything to talk, please click the button labeled “Raise Hand”, and wait for the permission from facilitator

3.2. Open Remark

Welcome and Opening Remarks by **Ms. Sin Putheary**, Executive Director of CCC.

She would like to say thank to the organizers, all working group members who always support CCC to make those learning forum go smoothly. As today, I would like to thank to our guest speaker, Mr. Khim Narith, member of M&E working group who will provide two days learning forum for sharing best experiences to all participants and also take this chance to provide feedback/input during this learning forum. I would like to say thank to each individual NGO who arrange their time to join in our learning forum. In addition, if we looked back to last year M&E learning forum, there were 379 participants online who join the learning forums online with the topic on Sharing M&E actual practice, Data Driven approach, and KOBO Toolbox. With the result from CCC’s survey, we noticed that 95% of participants satisfied with the topic provided and appreciated with the learning forum. However, there were some challenges from last year from some participants from province were difficult to access through online as the internet access is very limited.

I would like to say thank to our guest speaker, our working group members who always actively support and provide expertise to all learning forums. In conclusion, I would encourage everyone to keep in touch and continue to cooperate with each other to strengthen our work every circumstance. I would like to wish you all the best and take this chance to open this 28th M&E forum this morning, and hope we can get the fruitful discussions in the whole process of these two days learning forum.

4. Introduction to Data Analysis

4.1 what is Data Analysis?



Data Analysis

Process of fine-tuning, converting, and modelling data to generate meaningful and actionable insights that inform sound decisions.

Examining what has happened or what will happen before concluding.

4.2 Importance of Data Analysis

Researcher Hub
YouTube
9:10-9:30AM

Why Data Analysis Is Importance?



Researcher Hub
YouTube
9:10-9:30AM

Why Data Analysis Is Importance?



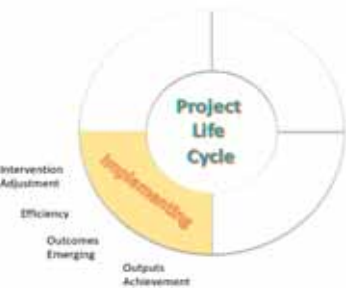
Researcher Hub
YouTube
9:10-9:30AM

Why Data Analysis Is Importance?



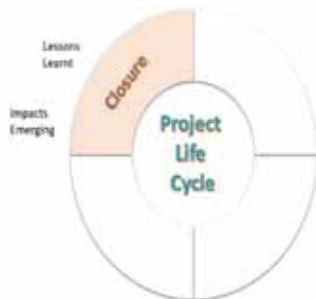
Researcher Hub
YouTube
9:10-9:30AM

Why Data Analysis Is Importance?



Researcher Hub
YouTube
9:10-9:30AM

Why Data Analysis Is Importance?



4.3 Data Analysis Process



Data Analysis Process



4.4 Developing Data Analysis Framework (Quantitative Data)

- *Data analysis plan*



Data Analysis Plan

Research Objectives

Research Questions

Research Hypothesis

Know Your Collected Data

Formulate Analysis Data Tables

- *Research Objective*



11:00-11:05AM



Data Analysis Plan

- *Research question*

Research Objectives

In general, research objectives describe what we **expect to achieve** by conducting a research.

- Objective:** To describe what factors farmers take into account in making such decisions as whether to adopt a new technology or what crops to grow.
- Objective:** To develop a budget for reducing pollution by a particular enterprise.
- Objective:** To describe the habitat of the giant panda in China.



11:00-11:05AM



Data Analysis Plan

- *Research Hypothesis*

Research Questions

is a specific inquiry which the research seeks to provide a response to.

BUT

It is not a single question in your questionnaire.

Ex. To what extent do the project target groups understand about benefits of wildlife and forest conservation?

Ex. Why learning outcomes in the primary education is still low although many efforts have been in place for years.

Research Hypothesis

A hypothesis is a statement that introduces a research question and proposes an expected result.

Mostly it is developed based on previous knowledge or literature review.

Ex. People have low understanding of forest benefits.

Ex. Students learning outcome has strong relationship with teacher's technical knowledge.



11:00-11:05AM



Data Analysis Plan

5. Data Preparation & Cleaning (Excel)

5.1 Creating Table

All participants had been divided into 4 groups for physical join and 8 groups for online. They would responsible for each group of Knowledge, Feasibility, Attitude and Practice by random selection from facilitator.

Each group has 40mn to create formulate analysis data table through reading and analyze the data given in the questionnaires. This data will be continuing to work more by tomorrow.



1:40-1:45PM

➤ Name the Table

Creating a Table within Excel

| Date of interview | Community | Village | Name of CPA | Sex | Age | Level Education | Ethnicity | Duration Living in village (Month) | Farming land (Ha) |
|-------------------|-----------|-----------|-------------|-----|-----|-----------------|-----------|------------------------------------|-------------------|
| 2019-01-18 | Krangteh | Krangteh | | 3 | 33 | 12 | 3 | 33 | Yes |
| 2019-01-18 | Krangteh | Krangteh | | 1 | 49 | 2 | 2 | 49 | Yes |
| 2019-01-18 | Krangteh | Krangteh | | 1 | 44 | 4 | 2 | 44 | No |
| | puhn | chungpang | | 2 | 32 | 8 | 3 | 15 | No |
| 2019-01-20 | sakhaat | Chykob | | 2 | 42 | 0 | 2 | 40 | Yes |
| 2019-01-20 | sakhaat | Chykob | | 1 | 26 | 0 | 2 | 26 | Yes |
| | sakhaat | Chykob | | 1 | 22 | 2 | 2 | 22 | Yes |
| 2019-01-20 | sakhaat | Chykob | | 2 | 15 | 4 | 2 | 15 | Yes |
| | sakhaat | Chykob | | 1 | 28 | 0 | 2 | 13 | Yes |
| 2019-01-20 | sakhaat | Chykob | | 0 | 19 | 0 | 2 | 19 | Yes |
| | sakhaat | Chykob | | 2 | 17 | 8 | 2 | 18 | Yes |
| | sakhaat | Chykob | | 2 | 25 | 0 | 2 | 25 | No |
| 2019-01-20 | sakhaat | Chykob | | 2 | 38 | 0 | 3 | 30 | Yes |
| | sakhaat | Chykob | | 2 | 15 | 3 | 3 | 13 | Yes |
| 2019-01-20 | sakhaat | Chykob | | 2 | 39 | 0 | 2 | 40 | Yes |
| 2019-01-20 | sakhaat | Chykob | | 1 | 45 | 0 | 2 | 40 | Yes |
| 2019-01-20 | sakhaat | Chykob | | 2 | 28 | 0 | 2 | 28 | Yes |
| | sakhaat | Chykob | | 2 | 43 | 0 | 2 | 43 | Yes |

5.2 Cleaning data

Select CTRL+ SHIFT +select down (this will help to select from first to down row)

Cleaning Data

1:40-1:45PM

Missing Value: No Empty Cell

| Village | Amount of CFA | Age |
|----------|---------------|-----|
| Krangsan | 1 | 1 |
| Krangsan | 1 | 1 |
| Krangsan | 1 | 1 |
| Chubuk | 2 | 2 |
| Chubuk | 1 | 1 |
| Chubuk | 1 | 1 |
| Chubuk | 2 | 2 |
| Chubuk | 1 | 1 |
| Chubuk | 2 | 2 |
| Chubuk | 2 | 2 |
| Chubuk | 2 | 2 |

Spelling: Inconsistent; typo

| Date of Interview | Commune | Village |
|-------------------|---------|-----------|
| | puchri | chungpang |
| | puchri | chungpang |
| | puchry | chungpang |
| | puchri | chungpang |
| | puchri | chungpang |
| | puchry | chungpang |
| | puchri | chungpang |

Flow of Questions:

| Farming land titled | If yes, how big? (ha) |
|---------------------|-----------------------|
| No | |
| No | 0 |
| No | 0 |
| No | 0 |
| No | 0 |
| No | 0 |
| No | 0 |
| No | 2 |
| No | 0 |
| No | 0 |
| No | 0 |
| No | 5 |
| No | 0 |
| No | 0 |

Divide group for practices:

1:45-2:15PM

Practice Cleaning Data



Divided into 8 Groups



Divided into 4 Groups

5.3 Recoding value



2:15-2:25PM

Recording Data

Record

| | | | | |
|--------------------------------|---|------------|---|---|
| Have you ever heard about CPA? | 1 | No | → | 0 |
| | 2 | Yes | | |
| | 9 | Don't Know | | |
| + | | | | |
| Are you a member of the CPA? | 1 | No | | |
| | 2 | Yes | → | 1 |
| | 9 | Don't Know | | |

| | | | | |
|--------|---|--------|---|--------|
| Gender | 1 | Male | → | Male |
| | 2 | Female | → | Female |

5.4 Creating new variable



2:15-2:25PM

Creating New Variable

Q. What assets do you have?

| | |
|---|--------------|
| A | TV |
| B | Hand Tractor |
| C | Generator |
| D | Motorbike |
| E | Car |

H. Most respondents have less than three of these assets?

Q. For what activities do you use your phone?

| | |
|---|-----------------------------|
| A | Calling |
| B | Messaging |
| C | Listening to Music or Radio |
| D | Taking Picture |
| E | Playing Facebook |
| F | Watching Youtube |
| G | Playing Games |
| H | Others:..... |

H. People don't use phone for variety things.

Q. What are the benefits of forest for human, animal, environment, and nature?

| | |
|---|---|
| A | Provide Non-timber forest products |
| B | Provide wood for construction and others |
| C | Attract and keep water |
| D | Provide shelter and food for human and wildlife |
| E | Purify and cooler the air |
| F | Relieve flood, storm, and lightning |
| G | Stable the nature |
| H | Other:..... |
| I | Don't Know |

H. People don't know much of forest's benefits.

6. Introduction to Pivot Table (Excel)

6.1 What is Pivot Table?

Researcher Hub
YouTube
3:25-3:30PM

| Row Labels | Count of Sex |
|-------------|--------------|
| Male | 200 |
| Female | 255 |
| Grand Total | 455 |

PivotTable Fields

Choose fields to add to report:

- Date of Interview
- Commune
- Village
- Name of CPA
- Sex
- Age
- Level Education
- Ethnicity?
- Duration Living in vill...
- Farming land titled
- If yes, how big? (ha)
- What is your main sou...
- Do you have the follo...
- Do you have the follo...

Drag fields between areas below:

Filters

Columns

Rows: Sex

Values: Count of Sex

Defer Layo... Update

What Is Pivot Table?

An interactive worksheet table

- It is a powerful tool to calculate, summarize, and analyze large amount of data that lets you see comparisons, patterns, and trends in your data.

Similar to a cross-tabulation table

- It classifies numeric data in a list based on other fields in the list.

6.2 When and why Pivot Table?

Researcher Hub
YouTube
3:35-3:40PM

| Row Labels | Count of Sex |
|-------------|--------------|
| Male | 200 |
| Female | 255 |
| Grand Total | 455 |

PivotTable Fields

Choose fields to add to report:

- Date of Interview
- Commune
- Village
- Name of CPA
- Sex
- Age
- Level Education
- Ethnicity?
- Duration Living in vill...
- Farming land titled
- If yes, how big? (ha)
- What is your main sou...
- Do you have the follo...
- Do you have the follo...

Drag fields between areas below:

Filters

Columns

Rows: Sex

Values: Count of Sex

Defer Layo... Update

When & Why Use Pivot Table?

- ❖ Quickly summarize data from a worksheet
- ❖ Calculate totals, averages, counts, etc.
- ❖ Generate charts from pivot table
- ❖ Data validation and checking
- ❖ Interactive: Easily rearrange them by moving, adding, or deleting fields
- ❖ Dynamic: Results are automatically recalculated whenever fields are added or dropped

6.3 Limitations of Pivot Table



3:45-3:50PM

Limitations

| Row Labels | Count of Sex |
|--------------------|--------------|
| Male | 200 |
| Female | 255 |
| Grand Total | 455 |

1. It can be a time-consuming venture: The collected data must be manually calculated, or equations must be manually inputted and that takes time.

2. Older computers can struggle to present data- large database

3. No statistical tests- Any tests must be carried out separately.

Day 2: Wednesday, 30th March 2022

6.4 Creating Basic Pivot Tables

- Adding / Removing fields
- Summarizing Values
- Showing Values
- Using Filter & Slicer
- Formatting Pivot Table- Pivot Table Tool

Practice Creating and Analysis Basic Pivot Table

Practice Creating Basic Pivot Table



Divided into 8 Groups



Divided into 4 Groups

Practice Analyzing the Data



Divided into 8 Groups



Divided into 4 Groups

G1- Feasibility

G2- Knowledge

G3- Attitude

G4- Practice

Respondent's Profile

Analyzing & Interpreting the Data

Task1: Formulate your analysis data tables

Task2: Presenting formulated Tables

Task3: use Pivot Table to Analyze Data

Task4: Complete all your analysis table

Researcher Hub
YouTube

10:50-11:20AM



Interpreting the Data

- The process of using diverse analytical methods to review data and arrive at relevant conclusions.

- Helps researchers to categorize, manipulate, and summarize the information in order to respond to research's objectives, questions, or hypothesize.

Researcher Hub
YouTube

10:50-11:20AM



Ask the right data interpretation questions

- What are the goals and objectives from my analysis?

- What type of data interpretation method will I use?

- Who will use this data in the future?

- What general question am I trying to answer?



Use the right data visualization type

- Data visualizations such as charts and tables are fundamental to successfully interpreting data
- Using the wrong graph can lead to misinterpretation of your data so it's very important to carefully pick the right visual for it

How to Use Charts

Four Different types of chart:



Pie chart:

The slide titled "Pie/Doughnut Charts" features a logo for "Researcher Hub" and "YouTube" in the top left corner, with a timestamp of "1:00-1:30PM". On the left, a pie chart is shown with four segments (blue, purple, yellow, and light blue). Below it, a bullet point reads: "• Consider the ordering of category levels". On the right, a screenshot of a software interface shows the "Charts" ribbon with the "Pie" icon circled in red. A tooltip box titled "Insert Pie or Doughnut Chart" is overlaid on the interface, containing the text: "Use this chart type to show proportions of a whole. Use it when the total of your numbers is 100%." and "Click the arrow to see the different types of pie and doughnut charts available and pause the pointer on the icons to see a preview in your document."

Bar Chart:

Researcher Hub
YouTube

11:20-12:00PM

Bar/Column Charts



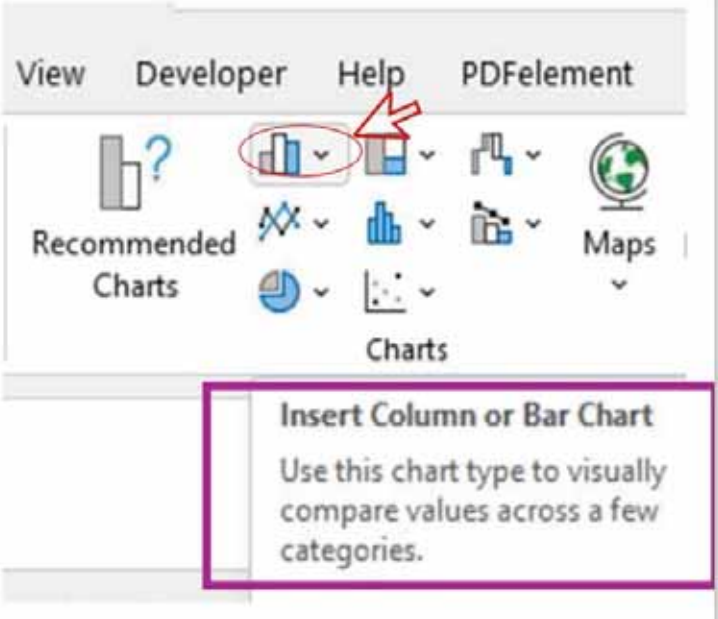
- Consider the ordering of category levels
- Make sure that all of your bars are being plotted against a zero-value

View Developer Help PDFelement

Recommended Charts

Charts

Insert Column or Bar Chart
Use this chart type to visually compare values across a few categories.



Line chart:

Researcher Hub
YouTube

11:20-12:00PM

Line/Area Charts

Total Units by Month and Manufacturer



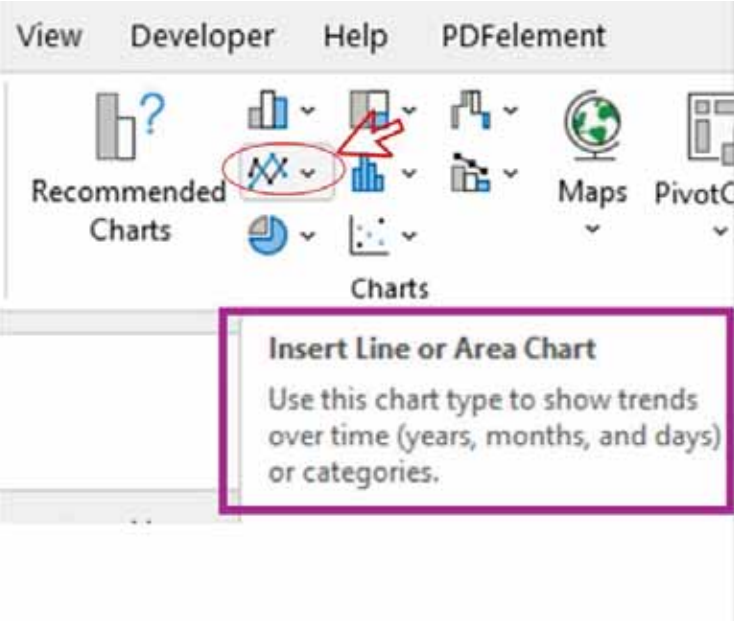
- Multiple lines could be used
- Not necessary to start with 0 value (Axis)

View Developer Help PDFelement

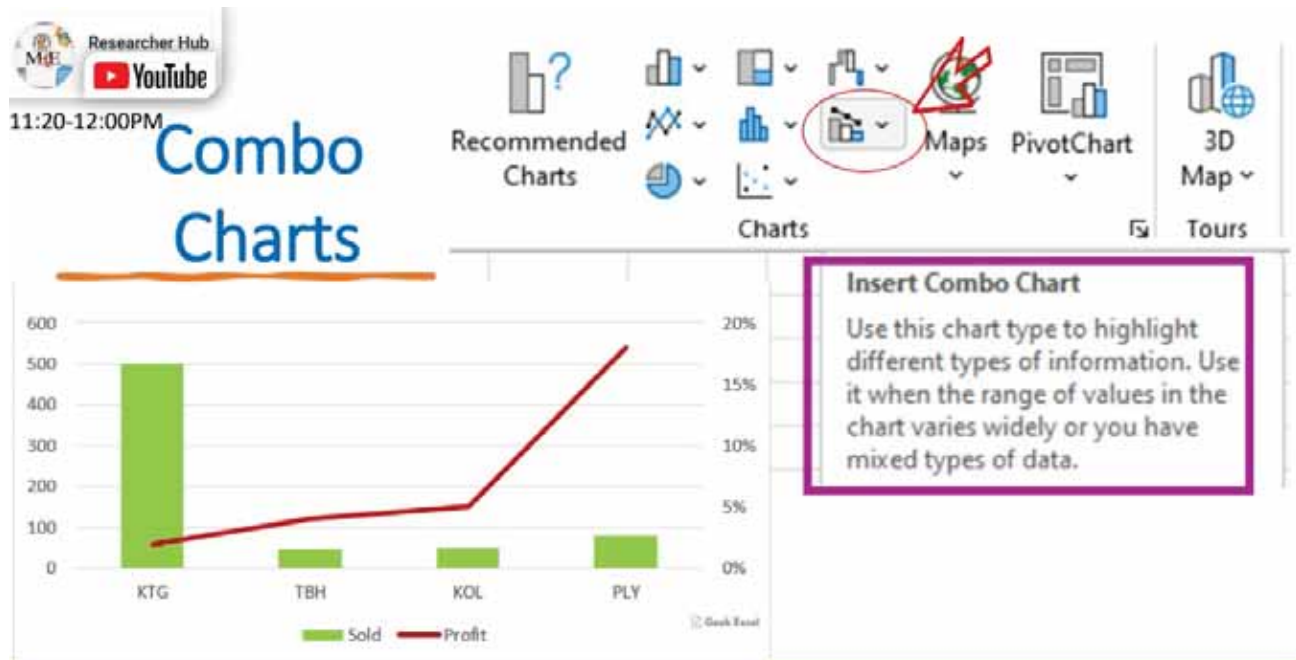
Recommended Charts

Charts

Insert Line or Area Chart
Use this chart type to show trends over time (years, months, and days) or categories.



Combo Chart:



7. Closing Remark

Closing remark was made by Mr. Mar Sophal, M&E Working Group member.

He would like to thank CCC for organizing this forum and also thank for all participants who fully participate in these two days learning forum with practices in most of the sessions. Even there were some challenges for some participants due to this was their first time for Pivot table implementation during this first hybrid platform for 2 days learning forum. In response to that, the participants still could raise their comments and challenges during implementing session from this M&E learning forum to CCC for bringing to discuss with M&E working group members after the forum. In conclusion, I would like to say thank for our guest speaker, Mr. Khim Narith, M&E working group members who provide his knowledge and expertise to this hybrid two days learning forum with mostly practical in each session to make this learning forum going on well and I would like to wish all of you the best and stay safety during this COVID-19 period.

Appendix:



For participants.rar

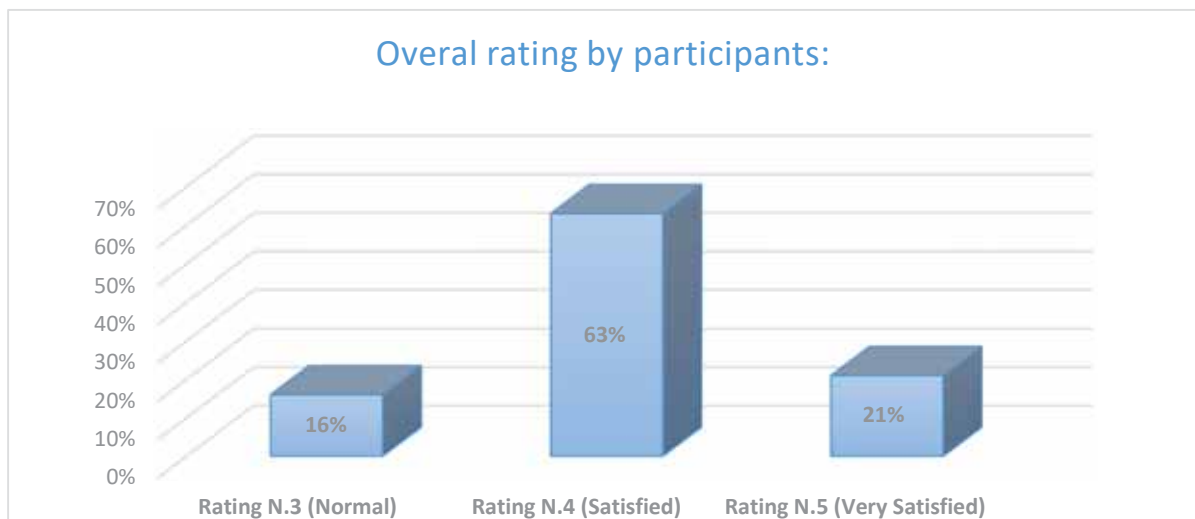
8. Feedback Survey Result

8.1 Feedback survey

After the M&E virtual learning forum completed, Ms. Than Sokhomala, GPP Officer, sent the request to participants to provide feedback on the Learning Forum through Google Form. Below is the result of feedback survey from **51 respondents** who provided the feedback among 89 participants (exclude M&E Working Group members and organizers) participated in this hybrid learning forum.

8.2 Overall rating of the learning forum

Based on the survey result, the overall rating from 1-5 on the forum is number 4. It means that generally participants were satisfied with the learning forum. Among the 5 rating statements, the top three rating of the satisfied level are on the statements of "Satisfied 63%, then 21% was Very Satisfied, and follow by 16% of Normal. Please see the table below:



8.3 Areas that participants learned most from the forum

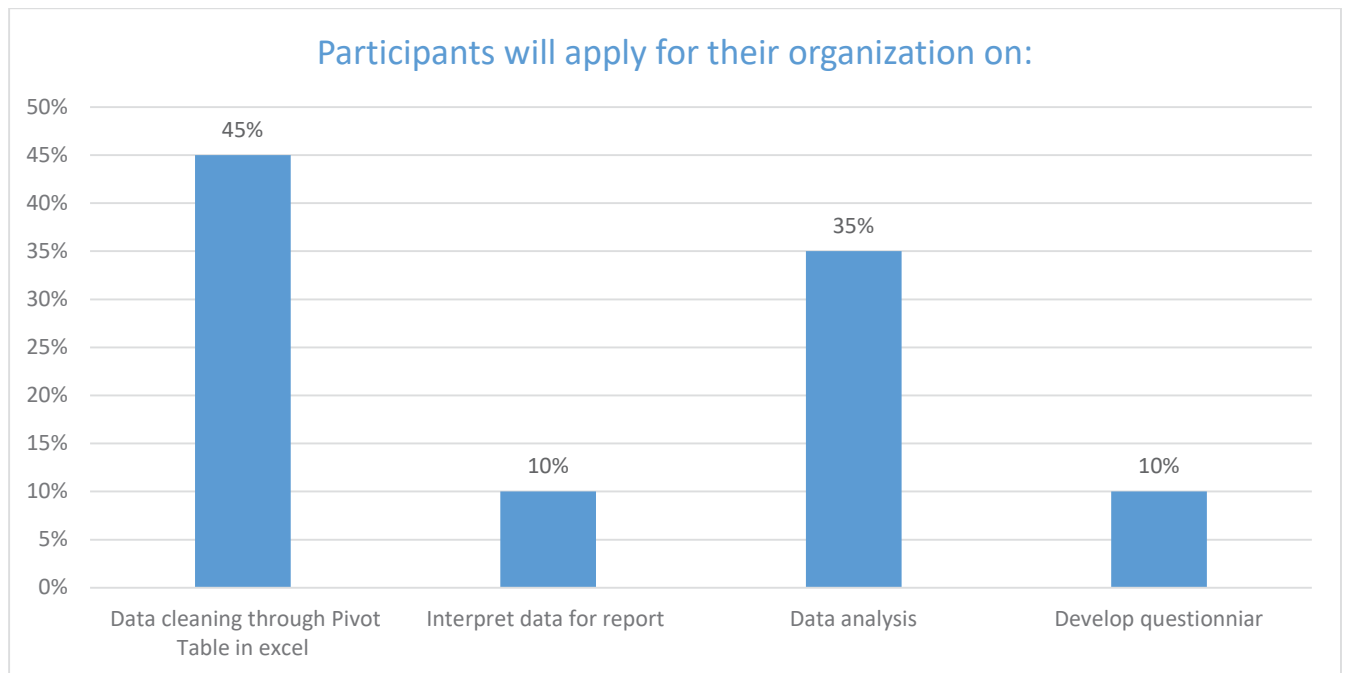
According to the feedback survey, participants expressed that what they have learned the most from the forum are:

- Create Pivot Table in excel for data cleaning and data analysis
- Data interpretation
- Research finding through research questions, research objectives, hypothesis

8.4 The areas to be applied into the organization

According to the graphic below it shows that the top areas that participants would apply in their organizations include 1) method of Data cleaning through Pivot Table in excel, 2) Data analysis and 3)How to Interpret data for report and how to develop questionnaires.

Graphic 1: Areas to be applied into the organization after the learning forum



9. Annex: Detail Agenda

| Time | Key Contents | Resource persons |
|--|--|--|
| Day1: 29th March 2022 | | |
| 08:00AM-08:30AM | Register | CCC Team |
| 08:30AM-08:40AM | Introduction objectives and ground rules | CCC Team |
| 08:40AM-08:50AM | Welcome and Opening Remarks | Ms. Sin Putheary Executive Director, CCC |
| 8:50AM-10:00AM | Introduction to Data Analysis <ul style="list-style-type: none"> • What Is Data Analysis • Importance of Data Analysis • Data Analysis Process | Mr. Khim Narith M&E working group |
| 10:00AM-10:15AM | Break | All |
| 10:15AM-12:00PM | Developing Data Analysis Framework (Quantitative Data) | Mr. Khim Narith M&E working group |
| 12:00PM-1:30PM | Lunch | |
| 1:30PM-3:00PM | Data Preparation & Cleaning (Excel) <ul style="list-style-type: none"> • Creating Table • Cleaning data • Recoding value • Creating new variable | Mr. Khim Narith M&E working group |
| 3:00PM-3:15PM | Break | All |
| 3:15PM-4:00PM | Basic Statistic for Data Analysis | Mr. Khim Narith M&E working group |
| 4:00PM-5:00PM | Introduction to Pivot Table (Excel) <ul style="list-style-type: none"> • What is Pivot Table? • When and why Pivot Table? • Limitations of Pivot Table | Mr. Khim Narith M&E working group |
| Day 2: 30th March 2022 | | |
| 08:30AM-09:00AM | Creating Basic Pivot Tables <ul style="list-style-type: none"> • Adding / Removing fields • Summarizing Values • Showing Values • Using Filter & Slicer • Formatting Pivot Table- Pivot Table Tool | Mr. Khim Narith M&E working group |
| 09:00AM-10:00AM | Practice Creating Basic Pivot Table | Mr. Khim Narith M&E working group |
| 10:00AM-10:15AM | Break | All |
| 10:20AM-12:00PM | Analyzing & Interpreting the Data | Mr. Khim Narith M&E working group |
| 12:00PM-1:30PM | Lunch Break | All |
| 1:30PM-2:30PM | Analyzing & Interpreting the Data (continue) | Mr. Khim Narith M&E working group |
| 2:30PM-3:30PM | How to Use Charts | Mr. Khim Narith M&E working group |

| | | |
|---------------|-----------------------|--|
| 3:30PM-4:00PM | Questions and Answers | All |
| 4:00PM-4:15PM | Closing remark: | Mr. Mar Sophal M&E working group |

Note: CCC will use the event photos from the learning forum for posting in CCC's website and other official use. CCC reserves the right to change the agenda based on the availability of the speakers and time constraints.